

TABLE 7-continued

Low acid											
	F76-1	F76-2	F76-3	F76-4	F76-G5	F76-6	F76-7	F76-8	F76-9	F76-10	F76-11
Glycerol Source	ADM	ADM	ADM	ADM	ADM	ADM	ADM	ADM	ADM	ADM	ADM
NaOH Feed Concentration (wt %)	2.10	2.10	0.50	0.50	0.00	0.00	1.00	1.00	2.10	2.10	0.00
H ₂ /Glycerol Molar Feed Ratio	5	5	5	5	5	5	5	5	5	5	5
H ₂ Flow Rate (SCCM)	450	450	450	252	252	252	454	252	454	454	454
% Wt. Recovery	97.44	97.94	97.05	98.98		92.12	96.81	96.49	98.62	98.38	97.76
% Carbon Recovery	96.46	94.70	99.02	99.58		98.67	95.64	96.18	96.51	96.10	100.55
Glycerol Conversion (By Difference)	0.97	0.98	0.61	0.73		0.13	0.86	0.91	0.94	0.96	0.31
LHSV (cc feed/cc cat/h)	1.67	1.67	1.67	0.83		0.83	1.67	1.17	1.67	1.67	0.83
WHSV (g/gly/g cat/h)	1.35	1.35	1.65	0.83		0.85	1.35	0.94	1.35	1.35	0.85
Space Time Yield (g PG/cc cat/h)	0.47	0.47	0.39	0.23		0.04	0.42	0.31	0.46	0.47	0.11
Selectivities											
PG C Molar Selectivity	0.907	0.920	0.964	0.963		0.990	0.947	0.941	0.915	0.928	0.991
Lactate C Molar Selectivity	0.029	0.031	0.007	0.008		0.000	0.020	0.021	0.040	0.036	0.000
EG C Molar Selectivity	0.021	0.020	0.016	0.015		0.010	0.017	0.016	0.016	0.015	0.009
Formate C Molar Selectivity	0.012	0.011	0.006	0.005		0.000	0.006	0.006	0.008	0.007	0.000
Glycerate C Molar Selectivity	0.004	0.003	0.003	0.004		0.000	0.006	0.006	0.006	0.007	0.000
Methanol C molar Selectivity	0.006	0.000	0.000	0.000		0.000	0.000	0.004	0.000	0.000	0.000
Ethanol C Molar Selectivity	0.013	0.012	0.003	0.004		0.000	0.004	0.005	0.008	0.004	0.000
Propanol (1&2) C Molar Selectivity	0.003	0.002	0.001	0.001		0.000	0.001	0.001	0.003	0.001	0.000

In compliance with the statute, this disclosure has been provided in language more or less specific as to structural and methodical features. It is to be understood, however, that the disclosure is not limited to the specific features shown and described, since the means herein disclosed comprise preferred forms of putting the invention into effect. The invention is, therefore, claimed in any of its forms or modifications within the proper scope of the appended claims appropriately interpreted in accordance with the doctrine of equivalents.

The invention claimed is:

1. A method for hydrogenolysing glycerol, the method consisting essentially of exposing a reactant stream comprising glycerol, water, and base to a catalyst comprising one or more of Ru, Ni, Pd, Co, and/or Re in the presence of a reducing agent to form propylene glycol, wherein the base is 0.5% to 2% (wt./wt.) of the reactant stream.

2. The method of claim 1 wherein the reactant stream comprises at least about 40% wt./wt. glycerol.

3. The method of claim 1 wherein the catalyst composition further comprises one or more of Zn, Cd, Se, Te, Cu, and/or Sn.

4. The method of claim 1 wherein the catalyst composition further comprises carbon.

5. The method of claim 1 wherein the catalyst composition comprises Ru.

6. The method of claim 5 wherein the catalyst composition further comprises Cd.

7. The method of claim 1 wherein the catalyst composition comprises Re and Ni.

8. The method of claim 1 wherein the catalyst composition comprises Co, Pd, and Re.

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